WHAT IS CLAIMED IS:

1. A system comprising:

first, second, and third input terminals to receive heart signals from respective external first, second, and third electrodes attached to a subject;

at least one pace pulse detector circuit, coupled to the first, second, and third input terminals, to detect from the heart signals first and second pace pulses delivered to different locations of the heart, the pace pulse detector circuit comprising an amplifier circuit to provide polarity information about the first and second pace pulses; and

a logic circuit, coupled to the pace pulse detector circuit, to assign a first location assignment to the first and a second location assignment to the second pace pulse using at least in part the polarity information about the first and second pace pulses.

2. The system of claim **1**, further comprising the external first, second, and third electrodes to couple to the first, second, and third input terminals, respectively.

3. The system of claim **2**, in which the first second and third electrodes define a first vector between the first and second electrodes, a second vector between the first and third electrodes, and a third vector between the second and third electrodes, such that the first electrode is negative with respect to the second and third electrodes, and the second electrode is positive with respect to the first electrode and negative with respect to the third electrode, and the third electrode is positive with respect to the first and second electrodes.

4. The system of claim 3, in which the logic circuit is configured such that, if a polarity of the first pace pulse is detected as positive for both the second and third vectors, then the first pace pulse is assigned to an atrial location and the second pace pulse is assigned to a ventricular location.

5. The system of claim 3, in which the logic circuit is configured such that, if a polarity of the first pace pulse is detected as negative for both the second and third vectors, then the first pace pulse is assigned to a ventricular location and the second pace pulse is assigned to an atrial location.

6. The system of claim 3, in which the logic circuit is configured such that:

if a polarity of the first pace pulse is detected as positive for both the second and third vectors, and the polarity of the second pace pulse is detected as negative for both the second and third vectors, then the first pace pulse is assigned to an atrial location and the second pace pulse is assigned to a ventricular location; and

if a polarity of the first pace pulse is detected as negative for both the second and third vectors, and the polarity of the second pace pulse is detected as positive for both the second and third vectors, then the first pace pulse is assigned to a ventricular location and the second pace pulse is assigned to an atrial location.

7. The system of claim 3, further comprising a depolarization detector circuit, coupled to at least two of the first, second, and third inputs, to detect whether a ventricular depolarization occurred within a predetermined time period of at least one of the first and second pace pulses, and in which the logic circuit is configured such that, if at least one of the first and second pace pulses is detected as having a different polarity between the second and third vectors, a location classification is assigned to the at least one of the first and second pace pulses at least in part using information about whether the ventricular depolarization occurred within the predetermined time period.

8. A method comprising:

receiving heart signals from external first, second, and third electrodes attached to a subject;

detecting respective electric fields of at least one first pacing pulse delivered to a first location of the heart and at least one second pacing pulse delivered to a second location of the heart; and

assigning one of first and second location assignments to each of the first and second pacing pulses at least in part using respective polarities of the respective electric fields.

9. The method of claim **8**, in which the first, second, and third electrodes define a first vector between the first and second electrodes, a second vector between the first and third electrodes, and a third vector between the second and third electrodes, such that the first electrode is negative with respect to the second and third electrodes, and the second electrode is positive with respect to the first electrode and negative with respect to the third electrode, and the third electrode is positive with respect to the first and second electrodes.

10. The method of claim **9**, in further comprising:

attaching the first and second electrodes above the heart;

attaching the third electrode below the heart;

attaching the first electrode near a right arm of the subject; and

attaching the second electrode near a left arm of the subject.

11. The method of claim **9**, in which the assigning includes, if the polarity of the first pace pulse is detected as positive for both the second and third vectors, then assigning the first pace pulse to an atrial location and assigning the second pace pulse to a ventricular location.

12. The method of claim **9**, in which the assigning includes, if the polarity of the first pace pulse is detected as negative for both the second and third vectors, then assigning the first pace pulse to a ventricular location and assigning the second pace pulse to an atrial location.

13. The method of claim **9**, in which the assigning includes, if at least one of the first and second pace pulses is detected as having a different polarity between the second and third vectors:

detecting whether a ventricular depolarization occurred within a predetermined time period of the at least one of the first and second pace pulses that was detected as having a different polarity between the second and third vectors; and

assigning a location classification to the at least one of the first and second pace pulses at least in part using information about whether the ventricular depolarization occurred within the predetermined time period.

14. The method of claim **8**, further comprising displaying an indication of the location classification in correspondence with an indication of at least one of the first and second pace pulses.

15. A system comprising:

first, second, and third input terminals to receive heart signals from respective external first, second, and third electrodes attached to a subject;

at least one pace pulse detector circuit, coupled to the first, second, and third input terminals, to detect from the heart signals first and second pace pulses delivered to different locations of the heart, and to provide at least one of an amplitude of the pace pulses, a pulsewidth of the pace pulses, and a time difference between one of the pace pulses and a corresponding heart depolarization associated with said one of the pace pulses;

a depolarization detector circuit, coupled to at least one of the first, second, and third inputs, to detect whether a corresponding heart depolarization occurred within a predetermined time period of at least one of the first and second pace pulses; and

a logic circuit, coupled to the pace pulse detector circuit, and configured to classify the pace pulses into distinct classes using at least one of the amplitude, the pulsewidth, the polarity, and the time difference, and to compute location assignments for the distinct classes at least in part using the detected heart depolarizations associated with the pace pulses.

16. The system of claim **15**, in which the logic circuit is configured to assign at least one of the distinct classes to a ventricular location if the at least one of the distinct classes includes at least one pace pulse that is accompanied by a ventricular depolarization within a predetermined time period of the at least one pace pulse.

17. The system of claim **15**, further comprising the external first, second, and third electrodes to couple to the first, second, and third input terminals, respectively.

18. The system of claim **17**, in which the first second and third electrodes define a first vector between the first and second electrodes, a second vector between the first and third electrodes, and a third vector between the second and third electrodes, such that the first electrode is negative with respect to the second and third electrodes, and the second electrode is positive with respect to the first electrode and negative with respect to the third electrode, and the third electrode is positive with respect to the first and second electrodes.

19. A method comprising:

receiving heart signals from external first, second, and third electrodes attached to a subject;

detecting pace pulses from the heart signals;

detecting any heart depolarizations associated with the pace pulses;

detecting at least one of an amplitude of the pace pulses, a pulsewidth of the pace pulses, a polarity of the pace pulses, and a time difference between each one of the pace pulses and a corresponding heart depolarization associated with said one of the pace pulses;

classifying the pace pulses into distinct classes using at least one of the amplitude, the pulsewidth, the polarity, and the time difference; and

computing location assignments for the distinct classes at least in part using the detected heart depolarizations associated with the pace pulses.

20. The method of claim **19**, in which the computing the location assignments for the distinct classes includes assigning at least one of the distinct classes to a ventricular location, if the at least one of the distinct classes includes at least one pace pulse that is accompanied by a ventricular depolarization within a predetermined time period of the at least one pace pulse.

21. The method of claim **19**, further comprising displaying an indication of at least one of the location assignments in correspondence with a corresponding indication of the pace pulse.